



SCAFFOLDING READING STRATEGIES WITHIN THE ZONE OF PROXIMAL DEVELOPMENT: EFFECTS ON STUDENTS' READING COMPREHENSION

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Abstract. The purpose of this study was to identify the effects of scaffolding techniques on students' reading comprehension within the Zone of Proximal Development with first-year pedagogy and psychology students at Kokand State University. A quasi-experiment was conducted with an experimental group (42) and a control group (38) over 8 weeks. Pre-test, post-test and reading test procedures, classroom observation, teacher reflection logs, and a student questionnaire were implemented to measure the impact of scaffolding on students' reading comprehension. This study found that the experimental group gained higher post-test scores after engaging in reading activities along with scaffolding strategies. Classroom observation showed that, based on students' competencies, supporting in steps rather than simply giving more help was a key factor for learning. The findings suggest that the scaffolding technique aligned with learners' ZPD is an effective and practical pedagogical approach which could help to improve teacher training and in psychology-majoring contexts.

Key words. scaffolding, Zone of Proximal Development, Vygotsky, sociocultural theory, student achievement, pedagogy and psychology discipline

Аннотация. Целью данного исследования было выявление влияния техник скаффолдинга (обучающей поддержки) на понимание прочитанного у студентов в рамках зоны ближайшего развития на примере студентов первого курса педагогического и психологического направлений Кокандского государственного университета. Был проведён квазиэксперимент с экспериментальной группой (42 человека) и контрольной группой (38 человек) в течение 8 недель. Для измерения влияния скаффолдинга на понимание прочитанного студентами были использованы процедуры предварительного и итогового тестирования, тесты на понимание прочитанного, наблюдение за занятиями, журналы рефлексии преподавателя и анкетирование студентов. В ходе исследования было установлено, что экспериментальная группа показала более высокие результаты в итоговом тесте после выполнения заданий по чтению с применением стратегий скаффолдинга. Наблюдение

за занятиями показало, что ключевым фактором обучения являлась поэтапная поддержка с учётом компетенций студентов, а не простое увеличение объёма помощи. Полученные результаты позволяют предположить, что техника скаффолдинга, соотнесённая с ЗБР учащихся, является эффективным и практичным педагогическим подходом, который может способствовать улучшению подготовки преподавателей и в контексте психолого-педагогических специальностей.

Ключевые слова: скаффолдинг, зона ближайшего развития, Выготский, социокультурная теория, успеваемость студентов, педагогика и психология

Introduction. Reading comprehension is considered an essential skill for students as they face reading messages or texts in their daily life. Developing reading comprehension skills in English is particularly considered important in most curriculum frameworks. Student-centred teaching technique, which address students' specific developmental needs compared to delivering the same instruction to the entire class, is prioritised increasingly in modern education. Vygotsky's idea of the Zone of Proximal Development (ZPD) is the main theory related to this technique [1]. This concept of teaching reading comprehension describes the difference between what a learner can do alone and what they can do with help. In classrooms, teachers use this theory by providing scaffolding, which means giving temporary and structured support like modeling, prompting, and asking questions.

Attarzadeh, M indicates that discussion-based instruction, particularly in high academic contexts, has been identified as significantly enhancing literature achievement and reading comprehension [3]. The term scaffolding, delivered by Bruner, refers to the support or assistance provided to a learner, which is tailored to their needs and gradually reduced as they develop their reading comprehension [2].

According to Tinungki, G. M. lesson program is statistical method, which requires high-level thinking since the students are hoped to be able to analyze statistics inference. In this case, students need help during the learning process in order to understand the concept of statistical method material optimally. The help could be in the form of guidance, encouragement, outlining problems into other forms that enable students to be independent. By implementing the ZPD process in the form of scaffolding stage, students are able to understand concepts of statistical method material optimally [4].

We can observe that most teachers prefer to conduct their classes using traditional instruction techniques; admittedly, they do not often apply effective scaffolding strategies. Many classroom instruction methods used to rely on identical explanations tailored to all students, regardless of proficiency level. Empirical implementation demonstrates that scaffolding instruction effectively enhances students' abilities in autonomous knowledge construction, collaborative learning, and problem-solving, thereby providing a referential pathway for the reform of mechanical engineering curricula in secondary vocational education. (Tian, D., Ying, L., & Liu, X.) [5].

This gap between theory and practice raises an important question: Does using structured scaffolding indicates students' ZPD lead to better learning results than traditional teaching methods?

This study examines how the effects of scaffolding reading strategies implemented within students' ZPD on their academic performance in the pedagogy and psychology fields and explores how scaffolding is used in practice through students' interaction.

Literature review

Jonalyn F. Sapid & Ariel L. conducted research based on Vygotsky's Zone of Proximal Development that indicates a learner can achieve their potential with assistance and gradually leads to autonomous learners. Implementing Reciprocal Teaching is an effective and productive strategy to develop reading comprehension skills. The quantitative analysis in this research revealed that students outperformed in three main themes: increased literacy, sustained engagement and boosted independence [6].

Addressing the integration of social scaffolding into app design and curriculum development can be of key importance to motivate learner motivation and engagement with extensive reading tasks. (Zhang et al.,) [7].

Researchers studied the diverse engagement of learners in Mobile-Assisted Extensive Reading (MAER) and its contextual influences, highlighting the role of individual learning goals and exam preparation. The study discusses the significance of social and institutional support while raising awareness of MAER practice, considering developing peer collaboration and teacher scaffolding, which facilitates effective reading habits among students.

Yawiloeng, R claims that peer scaffolding strategies involve support between learners of similar or different proficiency levels instead of from a more knowledgeable adult to enhance reading comprehension skills. In his study, the students who are at the beginner and elementary levels learn with teacher assistance, while intermediate students engage more in sharing and questioning with each other [8]. The study indicates that peers with different proficiency levels support each other using qualitatively distinct types of scaffolding. This is the point that peer interaction is not only a substitute for teacher scaffolding, but it is an approach with a different internal mechanism which is associated with the learners' relative competence. However, the study does not specify the types of text or duration used, as these details focus on how this technique is helpful for the ESP psychology-reading context. According to Herdiana, S. M scaffolding is associated with the zone of proximal development (ZPD) as a key point to effective learning for students, aligning with sociocultural theory. In her study, the writer points out that this is the process of dynamic learning which requires skilled individuals and learning students. Implementing scaffolding with social interaction trains students' mental functioning. The researcher indicates the significance of teacher scaffolding and peer scaffolding, presenting that students develop both their academic and professional reading comprehension with teacher guidance, while through peer scaffolding they become experts or master reading texts before guiding others, and this allows students more flexibility to ask questions compared to teacher-led instruction [9]. The peer scaffolding technique makes the reading process more interactive for students as it functions similarly regardless of proficiency level. Students can communicate with the text by drawing information from the written text and integrate information appropriately with their peers in class. In my lesson plans, peer scaffolding should look different for weak

students compared to intermediate-level students. Lower-level students working together may try just pointing at the answers, while intermediate-level students may engage in discussions, asking each other questions.

Scaffolding is important in academic language learning contexts through social learning based on the Zone of Proximal Development. This involves designing tasks that push students beyond their current capabilities by providing structured support. Organising collaboration between students and discipline-specific lecturers helps design effective scaffolding strategies to support students' academic literacy development, urging them to be independent and think critically (Wilson, K., & Devereux, L., 2014) [10].

The study of Wu, X. (2023) demonstrates student-centred learning when teachers act as facilitators, encouraging students toward active participation and autonomous learning [11]. This paper identifies scaffolding instruction as a combination of the Zone of Proximal Development and constructivism- constructing knowledge rather than passive learning. At the same time, research lacks explicit mention of methodology and empirical results to validate its claims and suggested applications.

Tastemir, M., & Seidaliyeva, G.O, explain that scaffolding is associated with Lev Vygotsky's sociocultural learning theory, especially the concept of the Zone of Proximal Development. Based on Vygotsky's concept, Jerome Bruner initially introduced the notion of scaffolding in education. According to Bruner scaffolding is defined as assistance delivered by the teacher to involve a student to complete tasks that would be challenging without support [12]. Organising lessons using scaffolding techniques effectively demands considerable time, as it requires careful planning at each stage and the qualifications to tailor assignments to individual student needs. However, poorly managed scaffolding techniques can cause students to become over-reliant on teacher assistance.

Shabani, K., et. al, highlight the importance of Vygotsky's Zone of Proximal Development (ZPD) in understanding the learning competency of children and its implications for teacher professional development. The study discusses implementing diary writing, peer collaboration and action research as scaffolding techniques that can promote the development of ZPD among language teachers [13]. As cited in Shabani, K., et. al, Stone (1984,1998) points out that the scaffolding metaphor can make teacher-learner interaction as adult-driven and one-sided. This approach may impede the process of reducing it to direct instruction, as fostered in Vygotsky's terminology, rather than facilitating active collaboration and dialogue.

Methods.

The research methods contain a quasi-experimental design with pre-test and post-test analysis within experimental and control groups. This design was chosen as the whole-class assignment was impossible to assign randomly. The comparative structure showed how scaffolding interventions affect learners' performance in their Zone of Proximal Development. The study also held a qualitative experiment aiming to define the interactional dynamics of scaffolding that quantitative analysis cannot show alone. This is a mixed-methods design with a main focus on quantitative data.

The experiment was conducted with 80 first-year students majoring in “Pedagogy and Psychology” at Kokand State University. The audience had different levels of English knowledge. Students experienced the scaffolding method, which leads to better results in language competency development within non-philology majors. Scaffolding is a teaching method that is based on Vygotsky’s Zone of Proximal Development through practice. Scaffolding means that language acquisition is supported by the teacher or by more skilled peers, which helps students complete tasks beyond their current independent competencies. The peer support gradually reduces as the learner becomes more autonomous.

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Groups were divided into experimental (n=42) and control (n=38). Respondents were selected through purposive sampling considering convenience and availability. Participants were chosen through purposive sampling based on similar benchmark proficiency shown by a diagnostic pre-test. This method was chosen to avoid disrupting the academic schedule by reorganising existing classes.

Data Analysis

I analyzed quantitative data (pre-test and post-test scores) using Google Form. To check if the groups were similar at the start, we used an independent-samples t-test. After the intervention, I compared the groups using both an independent-samples t-test or ANCOVA with the pre-test as a covariate. I reported effect sizes (Cohen's d) along with significance values ($\alpha = 0.05$). Cronbach's alpha was used to check the questionnaire's internal consistency, and for qualitative data from observations and reflection logs, thematic content analysis was used. I coded and grouped scaffolding episodes based on a framework from sociocultural theory, which helped me compare these findings with the quantitative results.

Discussion

These results show that scaffolding, when matched to a student's Zone of Proximal Development, helps students learn better than regular teaching. The big score improvement suggests that how help is given — step by step and gradually reduced — matters more than just giving extra help in general.

The classroom observations also showed that different students needed different amounts of support before they could work alone. This means teachers should adjust scaffolding to each student, rather than using the same approach for everyone. These findings agree with earlier research showing that scaffolding improves learning, and add new evidence from a local school setting. According to Gao. M, the revised lesson plan, with appropriate scaffolding from the instructor and suitable advice from peers, is more balanced

and better developed when compared to the original version that created by the pre-service teacher alone. In comparison to effects of microteaching, students show increased engagement and motivation in the modified lesson plan implementation, indicating that the pre-service teacher has reached the potential level in lesson plan design with the help of the instructor and peer scaffolding [14].

Findings

Table 1 below shows the three indicators of scaffolding experience — perceived scaffolding support, learning confidence and independence, and peer interaction and collaborative learning — of the 80 first year Kokand state university students. The table below revealed that perceived scaffolding support was the highest-rated indicator ($M = 4.12$, $SD = 0.58$), with a high descriptive level. This implies that students strongly recognized the gradual, guided help provided by their teacher as central to completing tasks beyond their independent ability. This means that students were able to identify specific instances of scaffolding — such as guiding questions and step-by-step modeling — as directly supporting their learning process. Thus, the students clearly experienced scaffolding as an effective form of instructional support.

Table 1

Level of Scaffolding Experience within the Zone of Proximal Development

Indicators	M	SD	Descriptive level
Perceived Scaffolding Support	4.12	58	High
Learning Confidence and Independence	3.85	71	High
Peer Interaction and Collaborative Learning	3.42	89	High
Overall meaning	3.80	72	High

Note: N = 51, M = Mean, SD = Standard Deviation

The result also showed that **peer interaction and collaborative learning** was the lowest-rated indicator ($M = 3.42$, $SD = .89$), although it still fell within the high descriptive level. This result is supported by the study of Wu.X.T.(2023), who found that peer-assisted scaffolding is often perceived as less impactful than direct teacher-led support, since students tend to place greater trust in expert (teacher) guidance than in peer guidance when a task lies at the outer edge of their Zone of Proximal Development. In his study Wu.X.T points out that teachers apply scaffolding techniques according to students' Zone of Proximal Development that support each part of the reading process in class and guide students through different scaffolding to develop their reading comprehension: **Question scaffolding** is asking controlling questions before students read a new passage, which helps them read with a clear purpose.

Chart scaffolding is using visuals in the text, encouraging students to figure out the main topic and content from charts or diagrams.

Strategy scaffolding is using useful reading techniques before reading, such as identifying word meanings from context, skimming, and scanning. These are skills students can use on their own after learning them.

Situational scaffolding places reading tasks in real or simulated situations, which helps students use what they already know and keeps them interested and motivated.

Applying these four methods—questioning, visual support, strategy instruction, and contextualization to teach reading—shows how scaffolding can be tailored to help students become independent readers [11]. This may explain why students in the present study, while still positive about peer collaboration, valued teacher-guided support more strongly.

The overall result shows that the students' scaffolding experience was high ($M = 3.80$, $SD = .72$); this implies that students, on average, perceived the graduated support they received as an effective bridge between their independent performance level and their potential developmental level. Structured scaffolding aligned with learners' Zone of Proximal Development significantly improves both perceived support and subsequent task performance.

These findings suggest that teachers should continue to focus on direct, teacher-led scaffolding techniques—such as modeling and graduated questioning—while also considering ways to support the perceived value of peer-assisted learning, since it remains a comparatively underutilized but still beneficial component of the scaffolding process.

Conclusion

Evidence from this study suggests that scaffolding strategies within students' Zone of Proximal Development play a key role in developing reading comprehension skills. Kuncoro & Truhmat explain that using scaffolding in the Zone of Proximal Development (ZPD) follows a three-stage process. This approach helps students better understand historical short stories and build their critical thinking and literacy skills [16].

Three-Stage Scaffolding Process

Initial support stage: In the first stage, students got basic help. Teachers might introduce key ideas, teach important vocabulary, or use guided reading to prepare students for the historical short stories.

Conceptual Interaction: In the second stage, students took part in interactive learning. They discussed and worked with the material to better understand it.

Development of Independence: In the final stage, students were encouraged to work on their own. As they improved, teachers gave less help so students could analyze and understand the texts by themselves.

The research results showed that students in the experimental group who received structured scaffolding got higher post-test scores than students in the control group who received conventional reading instructions. Students also reported high levels of comprehension support. They developed learning confidence, and classroom observation confirmed that gradual, responsive support—rather than simply increased teacher attention—played a key role. Moreover, the study creates student-centred training within scaffolding that adapts both teachers' and students' learning processes, providing appropriate techniques for teaching reading skills and assessing students' language knowledge development.

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